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## PROVISIONAL SPECIFICATION

## Improvements in the Manufacture of Bread and the like Yeast-Raised Baked Goods

I, SAMSON ROOS, a British subject, of Northgate House, 20-22, Moorgate, London, E.C.2, do hereby declare the nature of this invention to be as follows:—

This invention relates to the manufacture of bread, cakes, pastry and the like baked goods and the object of the invention is to provide a process which will enable all the ingredients of the dough-mix or batter to be thoroughly distributed throughout the mass; such a dispersion results in advantages described hereafter, and usually simplifies the mixing operation.

The distribution of the ingredients in this way gives many advantages, for example in the manufacture of bread, particularly where the time employed from the making of the dough to the finished loaf is at a minimum, as in the case where what is known as "short time" doughs are employed.

The process according to the invention comprises incorporating in the dough or like mix an aqueous emulsion of an edible fat or oil stabilised by glycerine monostearate or like polyhydric alcohol high molecular weight fatty acid ester which contains a non-esterified hydroxyl group or groups.

The aqueous emulsion also preferably contains known improvers such as soya flour, calcium salts, bromates, persulphates, ammonium salts and the like.

Instead of glycerine monostearate any long chain or high molecular weight fatty acid ester of a polyhydric alcohol or polymerised polyhydric alcohol may be employed provided that the ester contains a non-esterified hydroxyl group or groups whether in the alcoholic or acidic portions of the ester. For example, one or more of the following may be used to prepare the emulsion, glycol monolaurate, diethylene glycol mono-oleate, pentaerythritol monostearate, the diglyceride of hydroxystearic acid, the mono-glycol ester of oleic acid, triethylene glycol monostearate or glycerine distearate or mixtures of the same partial esters of polyhydric alcohols. The edible oil or fat may con-

sist of arachis oil, lard or compound fat or mixture of these, or any type of fat suitable for use in the manufacture of baked goods.

The following are examples of compositions of emulsions employed in the process according to the invention:—

## EXAMPLE 1.

% by weight.

Glycerine distearate	-	6.0	—10.0%	
Fat	-	20.0	—37.0%	
Soya	-	12.0	—20.0%	65
Phosphates	-	0.02	—0.05%	
Bromate	-	0.05%		
Persulphate	-	0.05%		
Water	-	25.0	—30.0%	
Salt	-	5.0	—10.0%	70

## EXAMPLE 2.

% by weight.

Glycerine monostearate	-	10.1%		
Fat	-	36.0%		
Soya	-	15.5%		75
Phosphates	-	0.05%		
Bromate	-	0.05%		
Persulphate	-	0.05%		
Water	-	29.45%		
Salt	-	8.7%		80

As an example the paste above described may be employed in the manufacture of bread in the following manner; and employing the following quantities:—

## 3 Hour Dough.

National flour	-	280 lbs.		85
Salt	-	5 lbs.		
Yeast	-	3½ lbs.		
Malt flour	-	½ lb.		
Prepared paste	-	3 lbs.		90
Water	-	15—16 gallons approximately according to flour.		

Break down the 3 lb. of the paste with ½ gallon of the dough water, and add to the dough batch last of all. Dough at 78°—80° F., knock back at 1½—2 hours, recover ½—1 hour, divide and hand up, recover 12—15 minutes, mould, give 40—45 minutes in second prover (110° F. approx.). Bake at usual temperature.

The dough as above produced matures more rapidly, shows increased fermentation tolerance and greater extensibility

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and gas retention. It handles better than usual and when baked shows a considerable "oven spring".

The crumb colour, grain, and texture of

the finished loaf is particularly improved as well as its keeping qualities.

Dated this 12th day of March, 1945.

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## COMPLETE SPECIFICATION

### Improvements in the Manufacture of Bread and the like Yeast-Raised Baked Goods

I, SAMSON ROOS, a British subject, of Northgate House, 20-22, Moorgate, London, E.C.2, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to the manufacture of bread and the like yeast raised baked goods, and the object of the invention is to provide a process which will enable all the ingredients of the dough-mix or batter to be thoroughly distributed throughout the mass; such a dispersion results in advantages described hereinafter, and usually simplifies the mixing operation.

The thorough distribution of the ingredients in this way gives many advantages in the manufacture of bread, particularly where the time employed from the making of the dough to the finished loaf is at a minimum, as in the case where what is known as "short time" doughs are employed.

A process of preparing bread and like yeast raised baked goods has been proposed in Specification No. 517,319 comprising incorporating in the yeast containing dough a fatty shortening agent in substantially liquid and free flowing form consisting of or containing mono or diglycerides of higher fatty acids which are preferably added in quantity sufficient to make the amount of excess of combined glycerine over that required to form triglycerides of the combined fatty acids of all the fat in the mix, equal to at least 0.1% of the weight of flour in the mix.

The process according to the present invention comprises incorporating in the dough mix an aqueous emulsion of an edible fat or oil stabilised by glycerine mono or di-stearate and/or mono or dioleate. It is preferred to employ the above-mentioned stabilisers in an amount of from 6% to 10% calculated on the weight of the emulsion.

The aqueous emulsion also preferably contains known improvers such as soya flour, calcium or ammonium salts (e.g. acid calcium phosphate or ammonium chloride), bromates and/or persulphates of potassium and the like.

The edible oil or fat may consist of arachis oil, lard or compound fat or mixture of these, or any type of fat suitable for use in baked goods.

The following are examples of compositions of emulsions employed in the process according to the invention:—

#### EXAMPLE 1.

% by weight.

Glycerine distearate -	6.0 —10.0%	70
Fat (lard, compound fat or edible oil) -	20.0 —37.0%	
Soya flour -	12.0 —20.0%	
Phosphate of calcium (acid) -	0.02— 0.05%	75
Bromate of potassium -	0.05%	
Persulphate of potassium -	0.05%	
Water -	25.0 —30.0%	
Salt -	5.0 —10.0%	80

#### EXAMPLE 2.

% by weight.

Glycerine monostearate -	-10.1%	
Fat (lard, compound fat or edible oil) -	36.0%	85
Soya flour -	15.5%	
Phosphate of calcium (acid) -	0.05%	
Bromate of potassium -	0.05%	
Persulphate of potassium -	0.05%	90
Water -	29.45%	
Salt -	8.7%	

The compound fat above referred to consists of partially hydrogenated oil or fat of vegetable origin or mixtures of such fats.

It will be understood that the glycerine mono or distearate used in the above examples may be partially or wholly replaced by glycerine mono or di-oleate.

In making the foregoing emulsions the soya flour is placed in a mixing machine and there is added while mixing a portion of the water in which the above inorganic salts have been dissolved with the exception of the common salt.

The glycerine mono or distearate and oil or fat are mixed together in a vessel heated to about 160° F. and when thoroughly mixed are introduced while stirring into the above-mentioned soya flour-water mixture.

The common salt is dissolved in the remaining portion of the water and stirred

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into the mass which is then allowed to cool and becomes a paste.

Due to the presence of the mono or distearate in the emulsion a very stable product is produced and one which enables the edible fat or oil and the other ingredients to become evenly distributed throughout the dough with which it is to be mixed. The presence of these partially esterified compounds also favourably influences the fermentation process. The potassium phosphate bromate and persulphate are well known yeast improvers, and the presence of the emulsion containing the glycerine mono or distearate in the emulsion acts in combination therewith giving results which are better than if the above-mentioned salts are used alone. It is preferred to add the aqueous emulsion to the dough to an amount of 0.5% to 2.0% based on the total weight of the dough.

As an example the paste above described may be employed in the manufacture of bread in the following manner and employing the following quantities:—

#### 3 HOUR DOUGH.

National flour -	280 lbs.
Salt - - -	5 lbs.
Yeast - - -	3½ lbs.
Malt flour - -	½ lb.
Prepared paste -	3 lbs.
Water - - -	15—16 gallons approximately according to flour.

Assuming that the paste employed in this example is made in accordance with Example 2 and contains 10.1% of glycerine monostearate, this represents an excess of combined glycerine over that required to form the triglyceride of only 0.018% of the weight of flour in the mix, which is considerably less than amounts hitherto employed.

The procedure is as follows. Break down the 3 lbs. of the paste with ¼ gallon of the dough water, and add to the dough

batch last of all. The dough is prepared by mixing the ingredients in the usual manner. Dough at 78°—80° F., knock back at 1½—2 hours, recover ½—1 hour, divide and hand up, recover 12—15 minutes, mould to desired shape of loaves, give 40—45 minutes in second prover (110° F., approx.). Bake at usual temperature.

The dough as above produced matures more rapidly, shows increased fermentation tolerance and greater extensibility and gas retention. It handles better than usual and when baked shows a considerable "oven spring".

The crumb colour, grain, and texture of the finished loaf is particularly improved as well as its keeping qualities.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. The process of manufacturing bread and the like yeast raised baked goods which comprises incorporating into the dough mix an aqueous emulsion of an edible fat or oil stabilised by glycerine mono or distearate and/or mono or di-oleate.

2. The process as claimed in Claim 1, wherein the aqueous emulsion contains from 6 to 10% by weight of the glycerine mono or distearate and/or mono or di-oleate.

3. The process as claimed in either of the preceding claims wherein the aqueous emulsion is employed in an amount of from 0.5% to 2.0% calculated on the total weight of the dough.

4. The improved process of manufacturing bread and the like yeast raised baked goods, substantially as described.

5. Baked products when prepared by the process hereinbefore described.

Dated this 14th day of August, 1945.

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